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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/812,529	03/20/2001	Koichiro Tanaka	SEL 246	2316

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CHICAGO, IL 60606

EXAMINER

BOOTH, RICHARD A

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 03/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/812,529

Applicant(s)

TANAKA, KOICHIRO

Examiner

Richard A. Booth

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. In all of the above mentioned claims, it is not clear how a semiconductor device can be an electronic device such as, for example, a cellular phone. It appears that a semiconductor device could be part of a cellular phone but to call a semiconductor device a cellular phone would be misstatement. Clarification is requested.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al., U.S. Patent 5,365,080.

Yamazaki et al. shows the invention as claimed including forming a non-single crystalline silicon film, for example, an amorphous silicon film 102 (see col. 3-lines 1-14) over a substrate; irradiating the amorphous semiconductor film with a first laser beam, for example, an excimer laser to form a first crystalline semiconductor film; and irradiating the amorphous semiconductor film with a second laser beam, for example, a YAG laser to form a second crystalline semiconductor film (see col. 4-line 51 – col. 5-line 6).

Regarding claim 6, Yamazaki et al. teaches that the above device can be used in a LCD device (see col. 1-lines 9-12).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,365,080.

Yamazaki et al. is applied as above but lacks anticipation of the semiconductor device being part of a cellular phone, video camera, digital camera, projector, goggle

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type display, a personal computer, a DVD player, an electronic book, or a portable information terminal. With respect to the various devices, the examiner takes official notice that it would have been obvious to utilize the semiconductor device formed in the '080 patent in any of these devices since all the devices mentioned above utilize such a device.

Claims 3 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,365,080 in view of Yamazaki et al., U.S. Patent 5,893,730.

Yamazaki et al. '080 is applied as above but lacks anticipation of the first laser having a wavelength from 126-370 nanometers and the semiconductor device being part of a cellular phone, video camera, digital camera, projector, goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal. With respect to the various devices, the examiner takes official notice that it would have been obvious to utilize the semiconductor device formed in the '080 patent in any of these devices since all the devices mentioned above utilize such a device. Regarding the wavelength of the first laser, Yamazaki et al. '730 discloses that excimer lasers have wavelengths at, for instance, 248 or 308 nanometers (see col. 9-lines 24-29). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a laser of the above mentioned wavelengths in the primary reference of the '080 patent because the '730 patent shows these to be effective excimer lasers for the purpose of annealing semiconductors.

Claims 4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,365,080 in view of Yamazaki et al., U.S. Patent 5,627,084.

Yamazaki et al. '080 is applied as above but lacks anticipation of the second laser having a wavelength of from 370-650 nanometers, for example, a second harmonic of a YAG laser, and the semiconductor device being part of a cellular phone, video camera, digital camera, projector, goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal. With respect to the various devices, the examiner takes official notice that it would have been obvious to utilize the semiconductor device formed in the '080 patent in any of these devices since all the devices mentioned above utilize such a device. Regarding the wavelength of the second laser, Yamazaki et al. '084 discloses a second harmonic of a YAG laser being usable for annealing semiconductor layers (see col. 3-lines 46-54). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a second harmonic of a YAG laser as the second laser in the primary reference of '080 because the '084 patent shows this as being a suitable wavelength for the annealing of semiconductor layers.

Claims 5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,365,080 in view of Yamazaki et al., U.S. Patent 5,893,730 as applied to claims 3 and 8-9 above, and further in view of Yamazaki et al., U.S. Patent 5,627,084.

The '080 and '730 references are applied as above but lack anticipation of the second laser having a wavelength of from 370-650 nanometers, for example, a second harmonic of a YAG laser, and the semiconductor device being part of a cellular phone, video camera, digital camera, projector, goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal. With respect to the various devices, the examiner takes official notice that it would have been obvious to utilize the semiconductor device formed in the '080 patent in any of these devices since all the devices mentioned above utilize such a device. Regarding the wavelength of the second laser, Yamazaki et al. '084 discloses a second harmonic of a YAG laser being usable for annealing semiconductor layers (see col. 3-lines 46-54). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a second harmonic of a YAG laser as the second laser in the primary reference of '080 because the '084 patent shows this as being a suitable wavelength for the annealing of semiconductor layers.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited and not relied upon show the state of the art in crystallization of TFT devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is 308-3446. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 308-7724 for regular communications and 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.



Richard A. Booth  
Primary Examiner  
Art Unit 2812